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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/878,581	06/19/97	OHTANI	A 35.G1975

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EXAMINER	
CHRISTENSEN, A	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/878,581	Ohtani et al.
Examiner	**Art Unit**
Andy Christensen	2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 4, 2001*

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-69* is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-69* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

1. The Applicants' amendment filed May 4, 2001 has overcome the 35 USC 112 rejections of Claims 50 and 60.

2. The Applicants' arguments filed May 4, 2001 have been fully considered by the Examiner but they are not deemed to be persuasive.

The Applicants argue that there is no disclosure or suggestion in Nagano of turning a particular lamp on and off a plurality of times during non-sensing intervals. However the claim language is too broadly written to distinguish over Nagano in that an operation of the lights being turned on and off during a period in which no image sensing operation is peformed (as set forth in the previous Office action) takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the Nagano reference may be interpreted to disclose that the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 7, 9, 12, 14-18, 20, 22, 25, 27-31, 33, 35, 38, 40-43, 45, 48, 50-53, 55, 58,

60-63, 65 and 68 are rejected under 35 USC 102(b) as being anticipated by Nagano (U.S. Patent No. 4,642,679).

Regarding Claim 1, Nagano discloses an image sensing apparatus comprising a plurality of light sources (1,2,3), an image sensing means (12) for sensing an image illuminated by the light sources and a light source controlling means (127) for controlling the plurality of light sources so that a predetermined light source of the plurality of light sources is turned on and turned off during a period in which no image sensing operation is performed by the image sensing means (See Column 7, Lines 57-60 and Figure 11 and note that the green lamp drive signal GFL is turned on and off during period G1 which is a period prior to the image sensing operation that takes place in period G2. Note also that the red and blue lamps are also turned on and turned off during periods Sd and Sh respectively, periods when no image sensing operation is performed, in order to overcome initial operating instability as described in Column 6, Lines 38-39 and 44-45. Furthermore the green lamp would be turned on and turned off in the same fashion as the red and blue lamps when used as described in Column 14, Lines 14-15). Each such operation takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Regarding Claim 2, Nagano discloses that the light source controlling means controls the

light sources so that a light source which is turned on first in an image sensing operation is turned on during a period in which no image sensing operation is performed (See Figure 11; green light source).

Regarding Claim 3, Nagano discloses that the light source controlling means controls the light sources so that a light source which needs a long time to turn on is turned on during a period in which no image sensing operation is performed (See the green lamp characteristic Sa in Figure 11).

Regarding Claim 4, Nagano discloses that the light source controlling means controls the light sources so that the plurality of light sources are sequentially turned on during a period in which an image sensing operation is performed by the image sensing means and all light sources are turned on at the same time during a period in which no image sensing operation is performed (Column 14, Lines 12-27).

Regarding Claim 5, Nagano discloses that the light source controlling means sequentially turns on the plurality of light sources so that the image sensing means may sense an image in a color mode (Column 1, Lines 6-10).

Regarding Claim 7, Nagano discloses that the light source controlling means turns on the

plurality of light sources during both a period in which an image sensing operation is performed and a period in which no image sensing operation is performed (Column 14, Lines 12-18).

Regarding Claim 9, Nagano discloses that the light source control means controls the light sources so that a part of the plurality of light sources is turned on during a period in which an image sensing operation is performed, and the same light source as the part of light sources which is turned on during the period in which an image sensing operation is performed is turned on also during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal RFL is turned on during the period G3 when no image sensing operation is performed and is also turned on during period R1 when image sensing is performed).

Regarding Claim 12, Nagano discloses that the light sources include light sources which emit light with wavelengths corresponding to red, green and blue (Column 3, Lines 11-15).

Regarding Claim 14, Nagano discloses a method of sensing an image comprising the steps of illuminating an image by a plurality of light sources (1,2,3); and turning on and turning off a predetermined light source of the plurality of light sources during a period in which no image sensing operation is performed by the image sensing means (See Column 7, Lines 57-60 and Figure 11 and note that the green lamp drive signal GFL is turned on and off during period G1 which is a period prior to the image sensing operation that takes place in period G2. Note also

that the red and blue lamps are also turned on and turned off during periods Sd and Sh respectively, periods when no image sensing operation is performed, in order to overcome initial operating instability as described in Column 6, Lines 38-39 and 44-45. Furthermore the green lamp would be turned on and turned off in the same fashion as the red and blue lamps when used as described in Column 14, Lines 14-15). Each such operation takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Regarding Claim 15, Nagano discloses that a light source which is turned on first at the beginning of an image sensing operation is turned on during a period in which no image sensing operation is performed (See Figure 11; green light source).

Regarding Claim 16, Nagano discloses that a light source which needs a long time to turn on is turned on during a period in which no image sensing operation is performed (See the green lamp characteristic Sa in Figure 11).

Regarding Claim 17, Nagano discloses that the plurality of light sources are sequentially turned on during a period in which an image sensing operation is performed and all light sources

are turned on at the same time during a period in which no image sensing operation is performed (Column 14, Lines 12-27).

Regarding Claim 18, Nagano discloses that the plurality of light source are sequentially turned on thereby sensing an image in a color mode (Column 1, Lines 6-10).

Regarding Claim 20, Nagano discloses that the plurality of light sources are turned on during both a period in which an image sensing operation is performed and a period in which no image sensing operation is performed (Column 14, Lines 12-18).

Regarding Claim 22, Nagano discloses that a part of the plurality of light sources is turned on during a period in which an image sensing operation is performed, and the same light source as the part of light sources which is turned on during the period in which an image sensing operation is performed is turned on also during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal RFL is turned on during the period G3 when no image sensing operation is performed and is also turned on during period R1 when image sensing is performed).

Regarding Claim 25, Nagano discloses that the light sources include light sources which emit light with wavelengths corresponding to red, green and blue (Column 3, Lines 11-15).

Regarding Claim 27, Nagano discloses a digital controller (127) inherently having a control memory in which a program is stored for controlling an image sensing apparatus to perform the steps of illuminating an image by a plurality of light sources (1,2,3); and turning on and turning off a predetermined light source of the plurality of light sources during a period in which no image sensing operation is performed by the image sensing means (See Column 7, Lines 57-60 and Figure 11 and note that the green lamp drive signal GFL is turned on and off during period G1 which is a period prior to the image sensing operation that takes place in period G2. Note also that the red and blue lamps are also turned on and turned off during periods Sd and Sh respectively, periods when no image sensing operation is performed, in order to overcome initial operating instability as described in Column 6, Lines 38-39 and 44-45. Furthermore the green lamp would be turned on and turned off in the same fashion as the red and blue lamps when used as described in Column 14, Lines 14-15). Each such operation takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Regarding Claim 28, Nagano discloses that the program first turns on a light source at the beginning of an image sensing operation and turns on the light source during a period in which no image sensing operation is performed (See Figure 11; green light source).

Regarding Claim 29, Nagano discloses that the program, during a period when no image sensing operation is performed, turns on a light source which needs a long time to turn on a light source which needs a long time to turn on (See the green lamp characteristic Sa in Figure 11).

Regarding Claim 30, Nagano discloses that the program sequentially turns on a plurality of light sources during a period in which an image sensing operation is performed and turns on all the light sources during a period in which no image sensing operation is performed (Column 14, Lines 12-27).

Regarding Claim 31, Nagano discloses that the program sequentially turns on the plurality of light sources for sensing an image in a color mode (Column 1, Lines 6-10).

Regarding Claim 33, Nagano discloses that the program turns on the plurality of light sources during both a period in which an image sensing operation is performed and a period in which no image sensing operation is performed (Column 14, Lines 12-18).

Regarding Claim 35, Nagano discloses that the program turns on a part of the plurality of light sources during a period in which an image sensing operation is performed, and turns on the same light source as the part of light sources which is turned on during the period in which an image sensing operation is performed is turned on also during a period in which no image sensing

operation is performed (See Figure 11 and note that the red lamp drive signal RFL is turned on during the period G3 when no image sensing operation is performed and is also turned on during period R1 when image sensing is performed).

Regarding Claim 38, Nagano discloses that the memory is arranged to control light sources which include light sources which emit light with wavelengths corresponding to red, green and blue (Column 3, Lines 11-15).

Regarding Claim 40, Nagano discloses an image sensing apparatus comprising a plurality of light sources (1,2,3), an image sensing means (12) for sensing an image illuminated by the light sources and a light source controlling means (127) for controlling the plurality of light sources so that a predetermined light source of the plurality of light sources is turned on and another light source is turned off during a period in which no image sensing operation is performed by the image sensing means (See Figure 11 and note that the red lamp drive signal is turned on during period G3 which is a period in which no image sensing operation is performed, and that the green lamp drive signal GFL is turned off during period G1 which is a period prior to the image sensing operation that takes place in period G2. Note also that the blue lamp is turned on during period R2, a period when no image sensing operation is performed, in order to overcome initial operating instability as described in Column 6, Lines 38-39 and 44-45, and that the red lamp is turned off during this period, etc. Furthermore the green lamp also operates according to this arrangement

when used as described in Column 14, Lines 14-15). Each such operation takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Regarding Claim 41, Nagano discloses that the light source controlling means controls the light sources so that a light source which is turned on first in an image sensing operation is turned on during a period in which no image sensing operation is performed (See Figure 11; green light source).

Regarding Claim 42, Nagano discloses that the light source controlling means controls the light sources so that a light source which needs a long time to turn on is turned on during a period in which no image sensing operation is performed (See the green lamp characteristic Sa in Figure 11).

Regarding Claim 43, Nagano discloses that the light source controlling means turns on the plurality of light sources during both a period in which an image sensing operation is performed and a period in which no image sensing operation is performed (Column 14, Lines 12-18).

Regarding Claim 45, Nagano discloses that the light source control means controls the light sources so that a part of the plurality of light sources is turned on during a period in which an image sensing operation is performed, and the same light source as the part of light sources which is turned on during the period in which an image sensing operation is performed is turned on also during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal RFL is turned on during the period G3 when no image sensing operation is performed and is also turned on during period R1 when image sensing is performed).

Regarding Claim 48, Nagano discloses that the light sources include light sources which emit light with wavelengths corresponding to red, green and blue (Column 3, Lines 11-15).

Regarding Claim 50, Nagano discloses an image sensing method comprising the steps of providing a plurality of light sources (1,2,3), sensing an image illuminated by the light sources (12) and controlling the plurality of light sources so that a predetermined light source of the plurality of light sources is turned on and another light source is turned off during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal is turned on during period G3 which is a period in which no image sensing operation is performed, and that the green lamp drive signal GFL is turned off during period G1 which is a period prior to the image sensing operation that takes place in period G2. Note also that the blue lamp is turned on during period R2, a period when no image sensing operation is performed, in

order to overcome initial operating instability as described in Column 6, Lines 38-39 and 44-45, and that the red lamp is turned off during this period, etc. Furthermore the green lamp also operates according to this arrangement when used as described in Column 14, Lines 14-15). Each such operation takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Regarding Claim 51, Nagano discloses a step of controlling the light sources so that a light source which is turned on first in an image sensing operation is turned on during a period in which no image sensing operation is performed (See Figure 11; green light source).

Regarding Claim 52, Nagano discloses the step of controlling the light sources so that a light source which needs a long time to turn on is turned on during a period in which no image sensing operation is performed (See the green lamp characteristic Sa in Figure 11).

Regarding Claim 53, Nagano discloses the step of turning on the plurality of light sources during both a period in which an image sensing operation is performed and a period in which no image sensing operation is performed (Column 14, Lines 12-18).

Regarding Claim 55, Nagano discloses the step of controlling the light sources so that a part of the plurality of light sources is turned on during a period in which an image sensing operation is performed, and the same light source as the part of light sources which is turned on during the period in which an image sensing operation is performed is turned on also during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal RFL is turned on during the period G3 when no image sensing operation is performed and is also turned on during period R1 when image sensing is performed).

Regarding Claim 58, Nagano discloses that the light sources include light sources which emit light with wavelengths corresponding to red, green and blue (Column 3, Lines 11-15).

Regarding Claim 60, Nagano discloses a digital controller (127) inherently having a control memory in which a program is stored for carrying out an image sensing operation comprising the steps of providing a plurality of light sources (1,2,3), sensing an image illuminated by the light sources (12) and controlling the plurality of light sources so that a predetermined light source of the plurality of light sources is turned on and another light source is turned off during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal is turned on during period G3 which is a period in which no image sensing operation is performed, and that the green lamp drive signal GFL is turned off during period G1 which is a period prior to the image sensing operation that takes place in period G2. Note also

that the blue lamp is turned on during period R2, a period when no image sensing operation is performed, in order to overcome initial operating instability as described in Column 6, Lines 38-39 and 44-45, and that the red lamp is turned off during this period, etc. Furthermore the green lamp also operates according to this arrangement when used as described in Column 14, Lines 14-15). Each such operation takes place for each cycle corresponding to a given reading line (Column 7, Line 53 and Column 8, Lines 6-9). Since there are a plurality of reading lines in Nagano, and therefore a plurlity of reaing cycles, the turning on and off of a particular lamp takes place a plurality of times during non-sensing intervals.

Regarding Claim 61, Nagano discloses that the program carries out the step of controlling the light sources so that a light source which is turned on first in an image sensing operation is turned on during a period in which no image sensing operation is performed (See Figure 11; green light source).

Regarding Claim 62, Nagano discloses that the program carries out the step of controlling the light sources so that a light source which needs a long time to turn on is turned on during a period in which no image sensing operation is performed (See the green lamp characteristic Sa in Figure 11).

Regarding Claim 63, Nagano discloses that the program carries out the step of turning on the plurality of light sources during both a period in which an image sensing operation is performed and a period in which no image sensing operation is performed (Column 14, Lines 12-18).

Regarding Claim 65, Nagano discloses that the program carries out the step of controlling the light sources so that a part of the plurality of light sources is turned on during a period in which an image sensing operation is performed, and the same light source as the part of light sources which is turned on during the period in which an image sensing operation is performed is turned on also during a period in which no image sensing operation is performed (See Figure 11 and note that the red lamp drive signal RFL is turned on during the period G3 when no image sensing operation is performed and is also turned on during period R1 when image sensing is performed).

Regarding Claim 68, Nagano discloses that the program is arranged to control light sources which include light sources which emit light with wavelengths corresponding to red, green and blue (Column 3, Lines 11-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6, 11, 13, 19, 24, 26, 32, 37, 39, 47, 49, 57, 59, 67 and 69 are rejected under 35 USC 103(a) as being unpatentable over Nagano in view of Lim et al. (U.S. Patent No. 5,532,825).

Regarding Claim 6, Nagano discloses that the light source controlling means sequentially turns on the plurality of light sources (See Figure 11) but the mode of operation is a color mode and not a monochrome mode.

However Lim et al. disclose arranging an image sensing device so as to sense an image in a monochromatic mode (Column 1, Lines 15-21) using sequential illumination by a plurality of light sources (Column 4, Lines 49-51), the Lim et al. device clearly being able to process its image data in such a way as to generate both color and monochrome images. It is clear from the teaching in Lim et al. that image data generated in response to sequential color illumination may be processed in such a way as to generate a monochromatic image. Provision of such processing in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images in response to its sequential illumination operation. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano

device so as to sense an image in a monochromatic mode from its sequential illumination operation in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 11, Nagano uses fluorescent lamps and not light emitting diodes. However Lim et al. disclose that either light emitting diodes or fluorescent lamps may be used for imaging operations. Therefore to one of ordinary skill in the art at the time of the invention the use of light emitting diodes in Nagano would clearly have been an obvious variation of the use of the fluorescent lamps. Furthermore when using light emitting diodes in Nagano it would have been obvious to employ the same control timing as that employed when using the fluorescent lamps (see Examiner's comments regarding Claim 1) in order to prevent any initial operating instability from interfering with the imaging operation.

Regarding Claim 13, the light sources in Nagano emit light wavelengths corresponding to red, green and blue and not according to yellow, cyan and magenta. However Lim et al. disclose that either yellow, cyan and magenta light sources may be used as an alternative to the use of red, green and blue lamps (Column 3, Lines 36-39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use yellow, cyan and magenta light sources in Nagano instead of the red, green and blue light sources since each configuration is well known in the art to be an obvious alternative to the other.

Regarding Claim 19, Nagano discloses that the plurality of light sources are sequentially turned on (See Figure 11) but the mode of operation is a color mode and not a monochrome mode.

However Lim et al. disclose arranging an image sensing device so as to sense an image in a monochromatic mode (Column 1, Lines 15-21) using sequential illumination by a plurality of light sources (Column 4, Lines 49-51), the Lim et al. device clearly being able to process its image data in such a way as to generate both color and monochrome images. It is clear from the teaching in Lim et al. that image data generated in response to sequential color illumination may be processed in such a way as to generate a monochromatic image. Provision of such processing in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images in response to its sequential illumination operation. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode from its sequential illumination operation in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 24, Nagano uses fluorescent lamps and not light emitting diodes. However Lim et al. disclose that either light emitting diodes or fluorescent lamps may be used for imaging operations. Therefore to one of ordinary skill in the art at the time of the invention the use of light emitting diodes in Nagano would clearly have been an obvious of the fluorescent

lamps. Furthermore when using light emitting diodes in Nagano it would have been obvious to employ the same control timing as that employed when using the fluorescent lamps (see Examiner's comments regarding Claim 1) in order to prevent any initial operating instability from interfering with the imaging operation.

Regarding Claim 26, the light sources in Nagano emit light wavelengths corresponding to red, green and blue and not according to yellow, cyan and magenta. However Lim et al. disclose that either yellow, cyan and magenta light sources may be used as an alternative to the use of red, green and blue lamps (Column 3, Lines 36-39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use yellow, cyan and magenta light sources in Nagano instead of the red, green and blue light sources since each configuration is well known in the art to be an obvious alternative to the other.

Regarding Claim 32, Nagano discloses that the light source controlling means sequentially turns on the plurality of light sources (See Figure 11) but the mode of operation is a color mode and not a monochrome mode.

However Lim et al. disclose arranging an image sensing device so as to sense an image in a monochromatic mode (Column 1, Lines 15-21) using sequential illumination by a plurality of light sources (Column 4, Lines 49-51), the Lim et al. device clearly being able to process its image data in such a way as to generate both color and monochrome images. It is clear from the

teaching in Lim et al. that image data generated in response to sequential color illumination may be processed in such a way as to generate a monochromatic image. Provision of such processing in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images in response to its sequential illumination operation. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the control memory in Nagano device so as to cause the device to sense an image in a monochromatic mode from its sequential illumination operation in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 37, Nagano uses fluorescent lamps and not light emitting diodes. However Lim et al. disclose that either light emitting diodes or fluorescent lamps may be used for imaging operations. Therefore to one of ordinary skill in the art at the time of the invention the use of light emitting diodes in Nagano would clearly have been an obvious of the fluorescent lamps. Furthermore when using light emitting diodes in Nagano it would have been obvious to employ the same control timing as that employed when using the fluorescent lamps (see Examiner's comments regarding Claim 1) in order to prevent any initial operating instability from interfering with the imaging operation.

Regarding Claim 39, the light sources in Nagano emit light wavelengths corresponding to red, green and blue and not according to yellow, cyan and magenta. However Lim et al. disclose

that either yellow, cyan and magenta light sources as an alternative to the use of red, green and blue lamps (Column 3, Lines 36-39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use yellow, cyan and magenta light sources in Nagano instead of the red, green and blue light sources since each configuration is well known in the art to be an obvious alternative to the other.

Regarding Claim 47, Nagano uses fluorescent lamps and not light emitting diodes. However Lim et al. disclose that either light emitting diodes or fluorescent lamps may be used for imaging operations. Therefore to one of ordinary skill in the art at the time of the invention the use of light emitting diodes in Nagano would clearly have been an obvious of the fluorescent lamps. Furthermore when using light emitting diodes in Nagano it would have been obvious to employ the same control timing as that employed when using the fluorescent lamps (see Examiner's comments regarding Claim 1) in order to prevent any initial operating instability from interfering with the imaging operation.

Regarding Claim 49, the light sources in Nagano emit light wavelengths corresponding to red, green and blue and not according to yellow, cyan and magenta. However Lim et al. disclose that either yellow, cyan and magenta light sources as an alternative to the use of red, green and blue lamps (Column 3, Lines 36-39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use yellow, cyan and magenta light sources in

Nagano instead of the red, green and blue light sources since each configuration is well known in the art to be an obvious alternative to the other.

Regarding Claim 57, Nagano uses fluorescent lamps and not light emitting diodes. However Lim et al. disclose that either light emitting diodes or fluorescent lamps may be used for imaging operations. Therefore to one of ordinary skill in the art at the time of the invention the use of light emitting diodes in Nagano would clearly have been an obvious of the fluorescent lamps. Furthermore when using light emitting diodes in Nagano it would have been obvious to employ the same control timing as that employed when using the fluorescent lamps (see Examiner's comments regarding Claim 1) in order to prevent any initial operating instability from interfering with the imaging operation.

Regarding Claim 59, the light sources in Nagano emit light wavelengths corresponding to red, green and blue and not according to yellow, cyan and magenta. However Lim et al. disclose that either yellow, cyan and magenta light sources as an alternative to the use of red, green and blue lamps (Column 3, Lines 36-39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use yellow, cyan and magenta light sources in Nagano instead of the red, green and blue light sources since each configuration is well known in the art to be an obvious alternative to the other.

Regarding Claim 67, Nagano uses fluorescent lamps and not light emitting diodes. However Lim et al. disclose that either light emitting diodes or fluorescent lamps may be used for imaging operations. Therefore to one of ordinary skill in the art at the time of the invention the use of light emitting diodes in Nagano would clearly have been an obvious of the fluorescent lamps. Furthermore when using light emitting diodes in Nagano it would have been obvious to employ the same control timing as that employed when using the fluorescent lamps (see Examiner's comments regarding Claim 1) in order to prevent any initial operating instability from interfering with the imaging operation.

Regarding Claim 69, the light sources in Nagano emit light wavelengths corresponding to red, green and blue and not according to yellow, cyan and magenta. However Lim et al. disclose that either yellow, cyan and magenta light sources as an alternative to the use of red, green and blue lamps (Column 3, Lines 36-39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use yellow, cyan and magenta light sources in Nagano instead of the red, green and blue light sources since each configuration is well known in the art to be an obvious alternative to the other.

5. Claims 8, 10, 21, 23, 34, 36, 44, 46, 54, 56, 64 and 66 are rejected under 35 USC 103(a) as being unpatentable over Nagano in view of Tani et al. (U.S. Patent No. 5,877,487).

Regarding Claim 8, Nagano discloses turning on the plurality of light sources at the same

time (Column 14, Lines 14-18) but not so that the image sensing means may sense an image in a monochrome mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-48) that may use a strobe of white light (Column 6, Lines 44-45) but may also use the simultaneous emission of red, green and blue light sources (Column 11, Lines 14-19). Provision of such an operation in Nagano using the simultaneous emission of red, green and blue light sources clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode using the simultaneous emission of its plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 10, Nagano discloses all of the limitations except that of turning on a part of the plurality of light sources so that the image sensing means may sense an image in a monochromatic mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-44) that uses the turning on of a part of the plurality of light sources. Provision of such an operation in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one

of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode by turning on a part of the plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 21, Nagano discloses turning on the plurality of light sources at the same time (Column 14, Lines 14-18) but not so that the image sensing means may sense an image in a monochrome mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-48) that may use a strobe of white light (Column 6, Lines 44-45) but may also use the simultaneous emission of red, green and blue light sources (Column 11, Lines 14-19). Provision of such an operation in Nagano using the simultaneous emission of red, green and blue light sources clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode using the simultaneous emission of its plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 23, Nagano discloses all of the limitations except that of turning on a

part of the plurality of light sources so that the image sensing means may sense an image in a monochromatic mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-44) that uses the turning on of a part of the plurality of light sources. Provision of such an operation in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode by turning on a part of the plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 34, Nagano discloses turning on the plurality of light sources at the same time (Column 14, Lines 14-18) but not so that the image sensing means may sense an image in a monochrome mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-48) that may use a strobe of white light (Column 6, Lines 44-45) but may also use the simultaneous emission of red, green and blue light sources (Column 11, Lines 14-19). Provision of such an operation in Nagano using the simultaneous emission of red, green and blue light sources clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the

time of the invention to configure the program in Nagano so as to cause the device to sense an image in a monochromatic mode using the simultaneous emission of its plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 36, Nagano discloses all of the limitations except that of turning on a part of the plurality of light sources so that the image sensing means may sense an image in a monochromatic mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-44) that uses the turning on of a part of the plurality of light sources. Provision of such an operation in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode by turning on a part of the plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 44, Nagano discloses turning on the plurality of light sources at the same time (Column 14, Lines 14-18) but not so that the image sensing means may sense an image in a monochrome mode. However Tani et al. disclose an imaging device that is configured to operate

either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-48) that may use a strobe of white light (Column 6, Lines 44-45) but also may use the simultaneous emission of red, green and blue light sources (Column 11, Lines 14-19). Provision of such an operation in Nagano using the simultaneous emission of the red, green and blue light sources clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so that the controlling means turns of the plurality of light sources at the same time so as to sense an image in a monochromatic mode in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 46, Nagano discloses all of the limitations except that of turning on a part of the plurality of light sources so that the image sensing means may sense an image in a monochromatic mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-44) that uses the turning on of a part of the plurality of light sources. Provision of such an operation in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the controlling means of Nagano device so as to cause the device to sense an image in a monochromatic mode by turning

on a part of the plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 54, Nagano discloses turning on the plurality of light sources at the same time (Column 14, Lines 14-18) but not so that the image sensing means may sense an image in a monochrome mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-48) that may use a strobe of white light (Column 6, Lines 44-45) but may also use the simultaneous emission of red, green and blue light sources (Column 11, Lines 14-19). Provision of such an operation in Nagano using the simultaneous emission of red, green and blue light sources clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode using the simultaneous emission of its plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 56, Nagano discloses all of the limitations except that of turning on a part of the plurality of light sources so that the image sensing means may sense an image in a monochromatic mode. However Tani et al. disclose an imaging device that is configured to

operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-44) that uses the turning on of a part of the plurality of light sources. Provision of such an operation in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic image by turning on a part of the plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 64, Nagano discloses turning on the plurality of light sources at the same time (Column 14, Lines 14-18) but not so that the image sensing means may sense an image in a monochrome mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-48) that may use a strobe of white light (Column 6, Lines 44-45) but may also use the simultaneous emission of red, green and blue light sources (Column 11, Lines 14-19). Provision of such an operation in Nagano using the simultaneous emission of red, green and blue light sources clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the program of Nagano so as to sense an image in a monochromatic mode using the simultaneous emission of its plurality of light sources in order to

increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

Regarding Claim 66, Nagano discloses all of the limitations except that of turning on a part of the plurality of light sources so that the image sensing means may sense an image in a monochromatic mode. However Tani et al. disclose an imaging device that is configured to operate either in a color mode (mode 2; Column 6, Lines 36-39) or a monochrome mode (mode 3; Column 6, Lines 41-44) that uses the turning on of a part of the plurality of light sources. Provision of such an operation in Nagano clearly would increase its utility by enabling the production of monochrome as well as color images. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Nagano device so as to sense an image in a monochromatic mode by turning on a part of the plurality of light sources in order to increase the utility of the device by providing a monochromatic operating mode in addition to the color mode of operation.

6. Applicants' amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date

of this final action.

7. Any response to this final action should be mailed to:

Box AF
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for formal communications; please mark "EXPEDITED PROCEDURE"; for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

8. Any inquiry regarding this communication or earlier communications from the examiner should be directed to Andy Christensen whose telephone number is (703) 308-9644.

If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, Wendy Garber, can be reached on (703) 305-4929.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

ANDREW B. CHRISTENSEN
PRIMARY EXAMINER

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July 16, 2001